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ABSTRACT

This study assessed the effectiveness of a model for providing long distance technical assistance on teacher implementation of an intervention designed to increase child-child social interaction. Subjects were 10 preschool special education teachers and 40 preschool-aged children (some developing normally and some with mild to moderate developmental delays) in rural south central Illinois. Teachers were provided with training on implementing Group Friendship Activities, an empirically validated procedure for increasing social skills of young children with disabilities. Group Friendship Activities are typical preschool games, songs, and activities that have been modified to include a response which expresses affection. Teachers were then provided with a video training tape follwed by three on-site visits over a 10-week time period. Results indicated that teachers implemented the Group Friendship Activities with a high degree of integrity, and changes in child social interaction skill were observed. There was a wide range in how many different activities were used, how many days the activities were actually conducted, and the number of peers with age-appropriate social skills that were included. The number of peers with age-appropriate social skills was the best predictor of gains in child social interaction skills. A figure and six tables with information related to the study, including a copy of the teacher data collection sheet is appended. (Author/JDD)

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Technical Assistance to Early Interventionists in Rural Areas: An Empirical Evaluation

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Abstract

The purpose of this study was to assess the effectiveness of a model for providing long distance technical assistance on teacher implementation of an intervention designed to increase child-child social interaction. Subjects for this study were 10 preschool special education teachers and 40 preschool-aged children. Teachers were provided with training on implementing Group Friendship Activities, an empirically validated procedure for increasing social skills of young children with disabilities. They were then provided with three on-site visits evenly spaced over a ten week time period. Primary dependent measures included teacher integrity of intervention implementation and subsequent changes in the social interaction rates of children with and without disabilities. Results showed that this model was effective. Teachers implemented the Group Friendship Activities with a high degree of integrity and changes in child social interaction skill were observed.

Technical Assistance to Early Interventionists in Rural Areas: An Empirical Evaluation

As knowledge and research about the benefits of early intervention for young children with disabilities increases, the need to provide this information to early interventionists in an inservice format becomes paramount. Bailey (1989) has noted that most pers el training needs are likely to be met through a continuum of inservice mechanisms that range from intensive didactic provision of information to longitudinal on-site technical assistance.

Unfortunately, despite the need for increased inservice training, Wolfe (1991) points out that there is a growing literature that suggests that typical inservice training activities, primarily didactic instruction alone, are often ineffective in assuring successful implementation or maintenance of newly learned procedures. Similarly, Fredericks and Templemen (1990) have reported that episodic training that is not linked to direct "hands on" application and feedback will not significantly impact service delivery. Thus, it appears that ongoing technical assistance must be included as a component of effective inservice training.

A number of effective technical assistance models have been suggested in the literature. For example, McEvoy, Davis, and Reichle (1993) have described a model of technical assistance that

includes didactic instruction followed by onsite technical assistance to teams of early intervention professionals. This model has been used to successfully train early interventionists to design, implement, and evaluate interventions to address the challenging behaviors of young children with disabilities. Similarly, Campbell (1990) has suggested a model of technical assistance that includes (a) a clear delineation of specific training needs; (b) didactic training by qualified personnel; (c) incentives for personnel to participate in training; (d) clear identification of expected outcomes for children; and (e) feedback to trainees on the implementation of newly learned procedures.

While important, providing inservice training to practitioners in rural settings presents significant challenges. The models described above require significant long term followup. Unfortunately the necessity of providing ongoing technical assistance is often compromised by the distance between the trainer and the recipients of training. Given this, the purpose of this study was to assess the effectiveness of a model of long distance technical assistance on teacher implementation of an intervention to increase child-child social interaction. Primary dependent measures included teacher integrity of intervention implementation and subsequent changes in the social interaction rates of children with and without disabilities. Thus the two questions addressed by this study were:

(a) Would a long distance technical assistance model be effective in training teachers in rural areas to implement an empirically validated procedure for increasing child social interaction and (b) Would teachers implement the intervention in a manner that it would produce changes in child behavior?

Method

Subjects

Subjects for this study were 10 preschool special education teachers and 40 preschool-aged children. All 10 female teachers were employed in preschool special education classrooms in rural South/Central Illinois. These classrooms were located about two hours driving distance from the researcher providing the technical assistance. Teaching experience of the subjects ranged from 1 to 20 years. All teachers held the Illinois teaching credential required to work in preschool special education programs.

The 40 children in the study ranged in age from 3 years, 4 months to 5 years, 7 months. They were divided into two groups of 20 based on teacher ranking of their social interaction skills from highest to lowest. Each teacher selected four target children to participate in the study. Table 1 displays the criteria used by the teachers to rank the children. Group A consisted of 8 girls and 12 boys that were ranged as "highest." These children were enrolled in one of the following programs: preschool special education, regular kindergarten, or programs

for children at-risk of school failure. If the child was not enrolled in the preschool special education classroom, he/she had to be available to participate in the intervention activities and free play on a regular basis. The children in Group A were either developing normally or had very mild delays (e.g., mild motor delays, articulation problems). Group B was composed of 7 girls and 13 boys having social interaction skills ranked as "lowest." All of the children in Group B were enrolled in preschool special education programs. Three of the children had moderate delays (e.g., cognitive, speech/language, social) and 17 had mild delays in these areas.

Insert Table 1 about here

Procedure

Overview of Training Model

The technical assistance training model used in this study involved three stages. First, teachers attended an inservice training session in which they received didactic instruction on how to implement an empirically validated strategy (i.e., Group Friendship Activities) to increase child social interaction. Following the training session, they were sent a video training tape accompanied by a set of written instructions, on how to implement Group Friendship Activities. The final stage involved a series of three follow-up visits evenly spaced over a ten week time period.

Description of Group Friendship Activities:

Group Friendship Activities are typical preschool games, songs, and activities which have been modified to include a response which expresses affection. These activities are implemented by the teacher during large or small group activity periods (Cooper & McEvoy, In press). Table 2 shows the procedures for implementing Group Friendship Activities that were used in this technical assistance training model. Group Friendship Activities were chosen as the intervention for training because they have been evaluated empirically and have been demonstrated to be user-friendly. In addition, the participating school districts had requested inservice training on procedures for increasing child-child social interaction.

Insert Table 2 about here

The actual study was carried out over a period of 10 weeks. Teachers were asked to implement the Group Friendship Activities for 5-10 minutes, four times per week and then follow these activities with a 10-15 minute free play period. They were directed to include peers (i.e., at least 30%) who had age-appropriate social interaction skills as they implemented the Group Friendship Activities and the free play period.

Additionally the teachers were requested to keep a daily implementation log on which they recorded: (a) the name of the Group Friendship Activity selected, (b) the number of peers

present for the activity, (c) the number of children with age-appropriate social skills that were present for the activity, (d) whether the four target children were present for the activity, and (e) whether the four target children were present for the free play period. Teachers were also asked to keep anecdotal records of changes they noticed in the children's social behavior during the second five weeks of the study.

Each teacher was visited three times by one of the researchers in this study, during which time she was videotaped conducting a Group Friendship Activity of her choice. Following this, each of the four target children in the classroom were videotaped individually for 5 minutes as they engaged in free play. During each visit, the teacher was provided with support and encouragement and any implementation questions she might have were addressed. The visits were spaced so that they were made during the beginning (weeks 1 and 2), middle (weeks 5 and 6), and end (weeks 9 and 10) of the study.

Teacher implementation variables. There were six teacher implementation variables in this study. These variables were (a) the number of different activities implemented, (b) the % of peers with age-appropriate social skills, (c) the number of days the Group Friendship Activities were implemented, (d) the teacher implementation score, (e) the teacher affect score, and (f) the total teacher score. Data about the first three variables were taken directly from each teacher's daily implementation log.

Data on the remaining three variables were obtained by scoring the three videotapes of each teacher implementing the Group Friendship Activities. A checklist was used to score the accuracy with which the teacher followed the steps to implement these activities. Table 3 displays this checklist. Teachers were given one point for each step implemented correctly. Thus each observation was worth a possible 10 points. From this procedure, a "teacher implementation score" was computed. Teachers were also evaluated on their verbal and nonverbal communication with the children, which resulted in a "teacher affect score" (see Table 3). The highest possible scores on the above two variables were 30 and 36 respectively. A "total teacher score" was calculated by combining the scores on these two variables. Interrater reliability was obtained by two observers independently rating the videotapes. Interrater reliability ranged from .87 to .95 with a mean of .90.

Insert Table 3 about here

Child variables. Child social interaction data was calculated by scoring videotapes of the target children engaged in free play. A coding system which was developed by one of the researchers in this study was used to score the videos (Neimeyer, Tapp, McEvoy, Ellis, & Wehby, (1988)). Data were reported as the percentage of time the child spent interacting with his/her peers. Three scores (i.e., observations 1, 2, and 3) were computed for each target child. Interrater

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reliability was assessed across all observers by having two observers independently score each of videotape segments. An agreement was scored if both observers scored an interaction as beginning and ending at the same time within a two second window. Percent of agreement was determined by dividing the number of agreements by the number of disagreements and multiplying by 100. The overall percentage of agreement was .84 with a range of .77-.91.

An additional child variable was the total days each child participated in the Group Friendship Activities. The scores on this variable ranged from 9 to 41 days with a mean of 28.30 days.

Results

Teacher-Related Behaviors

Means and standard deviations of teacher integrity of implementation of the Group Friendship Activities can be found in Table 4. The overall mean for this measure was 21.50 with a range of 19-26, indicating a high degree of integrity.

Insert Table 4 about here

Pearson product-moment correlation coefficients were run among the teacher implementation variables and between the teacher implementation variables and the child variables. These results are shown in Tables 5 and 6 respectively. As indicated in Table 5,

there were two significant correlations of interest. There was a positive correlation between number of peers with age-appropriate social skills and the teacher implementation score ($r=.49$, $p<.01$) and a negative correlation between number of peers with age-appropriate social skills and the teacher affect score (-.38, $p<.01$).

Insert Table 5 about here

Child-Related Behaviors

As noted in Figure 1, the children in Group A (high-interactors) demonstrated little change in social interaction rates throughout the study. The scores for the children in Group B (low-interactors) dropped somewhat between observations 1 and 2. However, there was a substantial increase in the percentage of social interaction for children in Group B between both observations 2 and 3 and observations 1 and 3.

Insert Figure 1 about here

As noted in Table 6, Pearson product-moment correlational analysis between the teacher implementation variables and the child variables indicated a significant positive correlation ($r=.32$, $p<.01$) between increases in child-child social interaction

(between observations 1 and 3) and the number of peers with age-appropriate social skills present in the Group Friendship Activities. In addition, there was a negative correlation ($r=-.43$, $p<.01$) between the number of peers with age-appropriate social skills and the rates of child-child social interaction at observation 1.

Insert Table 6 about here

A stepwise multiple regression analysis was conducted to determine which of the teacher implementation variables best predicted change in the percentage of child social interaction rates between observations 1 and 3. Of the implementation variables (see Tables 5 and 6), two contributed significantly to the prediction equation, $R=.47$, $F(2,37)=5.35$, $p<.01$. The number of peers with age-appropriate social skills was positively related (beta=.40) and the number of different activities was negatively related (beta=-.36) to the percentage of child-child social interaction. In other words, there was greater improvement in child social interaction skills between observations 1 and 3 when teachers included a higher number of peers with age-appropriate social skills and used fewer activities.

Anecdotal Teacher Notes

During the second five weeks of the study, the teachers kept anecdotal records of changes they noticed in the children's social behavior. The following observations were made:

1. Children seemed to gain a greater understanding of how to be a friend.
2. Children could resolve disagreements easier.
3. Group Friendship Activities seemed to calm the children down and unite them as a group.
4. There were increases in social interaction during and following the Group Friendship Activities.
5. Increases in social interaction of children identified as having low rates of social interaction were noted.
6. Increases in social interaction toward children with severe disabilities and those who were "social outcasts" were noted.
7. Children who previously resisted physical contact with teachers and peers began accepting physical contact.
8. Less fighting was observed during free play.
9. The amount of children's verbalization increased.
10. Children seemed friendlier and more affectionate with each other.

Discussion

This research was carried out to determine if a long distance technical assistance model could be used effectively with preschool special education teachers working in rural areas. Results showed that this model was effective. Teachers implemented the Group Friendship Activities with a high degree of integrity and changes in child social interaction skills were observed.

There were several interesting results. First, although the teachers implemented the activities each day with a high degree of integrity, there was a wide range in how many different activities were used, how many days the activities were actually conducted, and the number of peers with age-appropriate social skills that were included. Of these variables, only one seemed to affect the child-child social interaction rates. When a greater number of peers with age-appropriate social skills were present, the teacher tended to implement the activities with a higher degree of integrity. Given the findings that the presence of peers also decreased the teacher affect or verbal behavior, it may be that the typically developing peers decreased the need for teachers to reinforce interaction thus allowing the teacher to focus on the actual implementation of the Group Friendship Activities. McEvoy et al (1988) have noted that peers may take on reinforcing properties thus increasing the likelihood that the target children would seek them out for interaction during freeplay.

The second focus of this study was to determine if changes in teacher behaviors as a result of long distance technical assistance would result in subsequent child-behavior changes. This seems very important given the lack of data in the literature that looks at the effects of inservice training on both the trainee and the actual targets of the intervention. Increases in interaction were seen for children that teachers had indicated previously were low interactors. The trends in their data (e.g., an initial decrease between observations 1 and 2 followed by an increase in interaction between observations 2 and 3) are similar from earlier studies. It may be that the target children were initially inhibited by their peers with age-appropriate social skills but later were positively influenced by their presence.

Perhaps the most significant finding is that the number of peers with age-appropriate social skills was the best predictor of gains in child social interactions skills. This points to the importance of working with teachers to create opportunities for children in preschool special education programs to interact with their normally developing peers. It also provides some empirical support for the current movement towards "inclusion" of children with disabilities in a variety of early childhood settings. While anecdotal at best, the comments of the teachers provide additional support for the positive changes in social interaction skills as a result of children participating in Group Friendship Activities.

In conclusion, this study shows that an empirically validated training strategy can be taught effectively to preschool special education teachers working in rural areas through a long distance technical assistance model. Future research efforts should be directed towards developing additional user friendly training strategies, that can be easily transported to a variety of geographical areas using a technical assistance model that relies on limited followup.

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Figure 1
Percentage of Child Social Interaction
Across Three Observations of Free Play

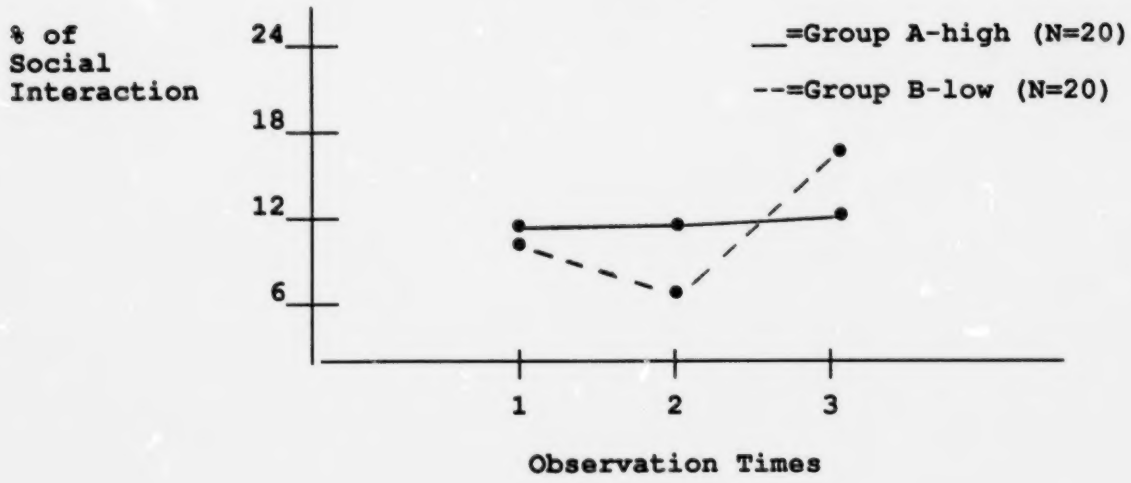

Table 1
Teacher Ranking System

Rank order children that can participate in both Group Friendship Activities and free play time on the following criteria:

1. the amount of time the child interacts with other children during playtime.

2. how often the child organizes play (such as games or fantasy play) with other children.

3. how often the child initiates play and/or shares toys with other children.

Use all three criteria simultaneously as you rank order the children so that you will have <u>one</u> list of children in order from the highest to lowest levels of social skills. Select the two highest and two lowest children to be the target children for this study.

Table 2
Procedures for Conducting Group Friendship Activity

When you are conducting the Group Friendship Activity, please follow these steps:

Step 1 - Select the Group Friendship Activity from the set of 12 activities included in your packet of materials. Try all of the activities at least one time.

Step 2 - Select the sign of friendship that you plan to use for the activity. Choose from these: a handshake, a hug, a pat on the back, a smile, a high five, a tickle, saying nice things to others, or any other sign of friendship that are mentioned in the description of the Group Friendship Activities.

Step 3 - Ask the children to sit in a circle.

Step 4 - Secure the attention of the children. Make sure you have everyone's attention before you begin explaining the activity.

Step 5 - Talk to the children about the importance of being friends and discuss ways of showing friendship.

Step 6 - Explain the activity to the children.

Step 7 - Demonstrate how the children will use the sign of friendship in the activity and have the children practice the sign of friendship.

Step 8 - Position the children correctly for the activity. In some activities the children will remain seated, while in others they will stand up.

Step 9 - Lead the children through the activity.

Step 10 - Praise the children for using the sign of friendship in the activity.

As is always important in working with young children, try to be enthusiastic when introducing and conducting the Group Friendship Activity. Your verbal and nonverbal communication should be warm and positive, natural, appropriate in amount, and at the correct developmental level.

Table 3

_____
Teacher's Name

Teacher Data Collection Sheet

I. Implementation of the Activity	yes	no
1. Teacher selects activity.		
2. Teacher selects all warm fuzzies (e.g. hand shake, pat on the back, hug). There is evidence that she has thought about the warm fuzzy prior to starting this activity.		
3. Teacher asks children to form a circle. (If children are in a circle when the tape starts, this item can be scored as "yes.")		
4. Teacher talks to the children about the importance of being friends.		
5. Teacher explains the activity to the children before starting the activity.		
6. Teacher demonstrates or explains how the children will use the warm fuzzy in the activity before starting the activity - at least once.		
7. Children practice the warm fuzzy before beginning the activity.		
8. Teacher positions children correctly for the activity (e.g., has them stand up, stay seated, etc.)		
9. Teacher leads the children through the activity.		
10. Teacher praises the children for using the warm fuzzy or for being friends during or immediately after the activity.		

Score _____

Scoring: "yes"=1 point
"no" =0 points

Possible score for each observation =10 points.

II. Observer's Impressions	poor	average	exceptionally well
Verbal Communication			
The teacher demonstrates verbal communication that is			
1. warm and positive			
2. natural (teacher seems to enjoy participating)			
3. appropriate in amount (frequent enough to maintain the children's interest)			
4. at the correct developmental level			
5. enthusiastic (voice shows inflection)			
Nonverbal Communication			
1. The teacher makes eye contact with the majority of the children throughout the activity.			
2. The teacher's nonverbal communication is			
a. warm and positive (smiles, affectionately touches the children			
b. natural (teacher seems to enjoy participating			

Score _____

Scoring: "poor"=1/2 point
"average"=1 point
"exceptionally well"=1 1/2 points

Possible score for each observation =12 points.

Table 4
Means and Standard Deviations of
Teacher Implementation Variables

Variable	$\bar{X}$	SD	Range
Number of activities	8.80	2.34	4-12
Number of days	30.20	9.72	13-41
% of typical peers	44.60	15.41	28-83
Teacher implementation score	21.50	2.28	19-26
Teacher affect score	31.30	5.37	21-36
Total teacher score	52.80	6.17	40-61

a=% of peers with age-appropriate social skills

Table 5
Correlations Among Teacher Implementation Variables

Variable	% of typical peers	# of Days	Teacher Impl. Score	Teacher Affect Score	Total Teacher Score
Number of activities	.23	.62**	.38**	.07	.20
% of typical peers	----	-.07	.49**	-.38**	-.15
Number of days		----	-.01	-.07	-.06
Teacher Impl. Score			----	.17	.93**
Teacher Affect Score				----	.51**
Total Teacher Score					----

a=% of peers with age-appropriate social skills
**=p<.01.

Table 6
Correlations Between Teacher Implementation Variables and Child Variables

Teacher Implementation Variables	Change in Obs. 1-3	Change in Obs. 2-3	Obs. 1	Obs. 2	Obs. 3	Child Days of Particp.
% of typical peers	.32*	.15	-.43**	-.15	.08	-.04
Number of activities	-.27	-.25	.02	.08	-.28	.59**
Number of days	.17	-.04	.19	-.01	-.06	.97**
Teacher Impl. Score	-.11	-.04	-.03	-.12	-.14	-.09
Teacher Affect Score	-.18	.10	.32*	-.17	-.01	-.10
Total Teacher Score	-.20	.07	.26	-.19	-.05	-.12

a=% of peers with age-appropriate social skills
*=p<.05. **=p<.01.